The Aura Validation Data Center (AVDC)

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http://avdc.gsfc.nasa.gov

Outline

- Status
- Cal/Val support
- Validation data centers
- Future plans

Status

Status

- Routine operations on-going on http://avdc.gsfc.nasa.gov
  - Hardware: computing nodes 28, 80 TB storage
- Currently 350+ registered users
- ~2 Million pages accessed
- ~2 TB downloads in last year (~6 GB/day)
- Total correlative data volume:
  - ~460 GB
  - correlative satellite datasets: ~20 TB

Datasets (1)

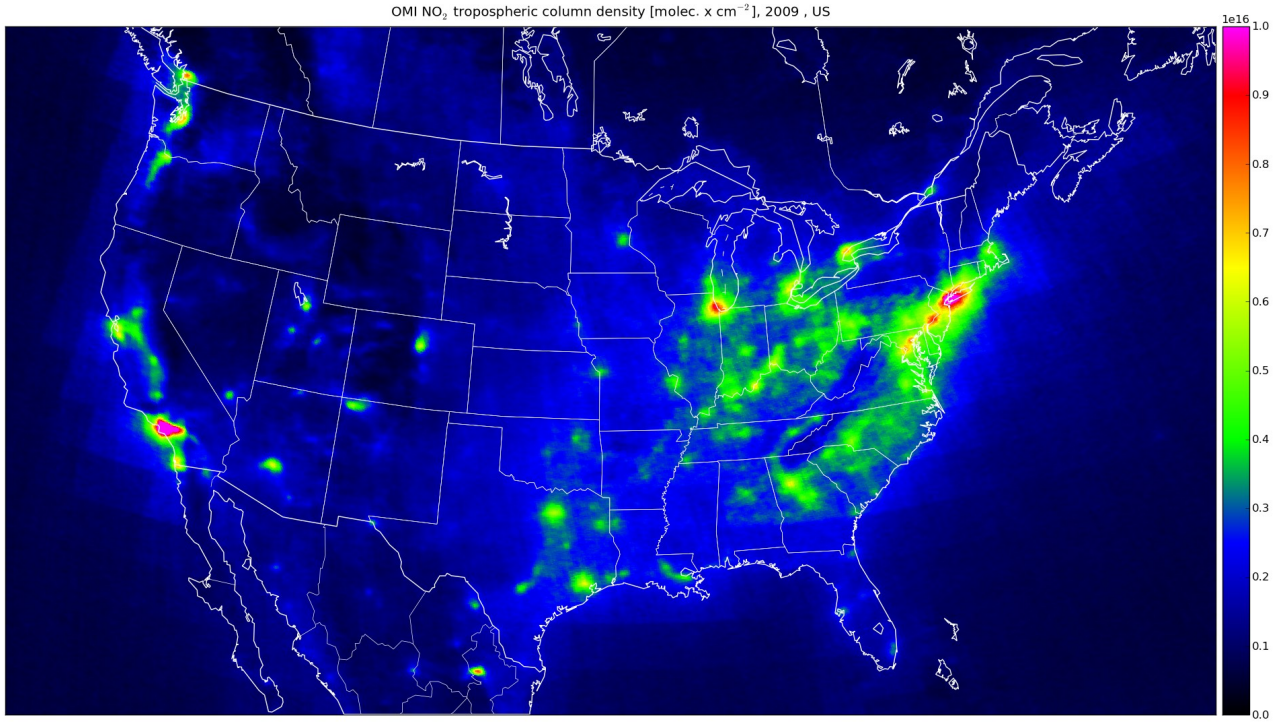
- Continue to mirror all Aura L2 data from DISC
- Maintain correlative datasets
  - FTIR
  - LIDAR
  - MWR
  - Balloon sondes
  - Brewer
- Maintain Aura related campaign archives or related data
  - GloPac, MOHAVE, WAVES, SAUNA (1&2), etc.
  - Mirror aircraft/large balloon missions
    - INTEX-A/B, AVE, ...

Datasets (2)

- Continue to host preliminary, experimental and complimentary satellite datasets:
  - OMNO2 L3 (0.25 x 0.25 and 0.05 x 0.05 deg)
  - Pandora
  - AIRS, Scisat ACE
  - NOAA 16-18 SBUV v8 profiles
  - MetOp GOME2 (O3, NO2, SO2)
  - Envisat GOMOS, MIPAS, SCIAMACHY L1/L2
  - ERS-2 GOME L1/L2

Datasets (3) OMNO2 L3

Routine processing for daily and monthly OMI NO2 tropospheric and total column maps available as images, hdf5 or Google Earth files (Scientific product for J. Gleason (OMI NO2 PI)). Year 2009 average tropospheric NO2 column.



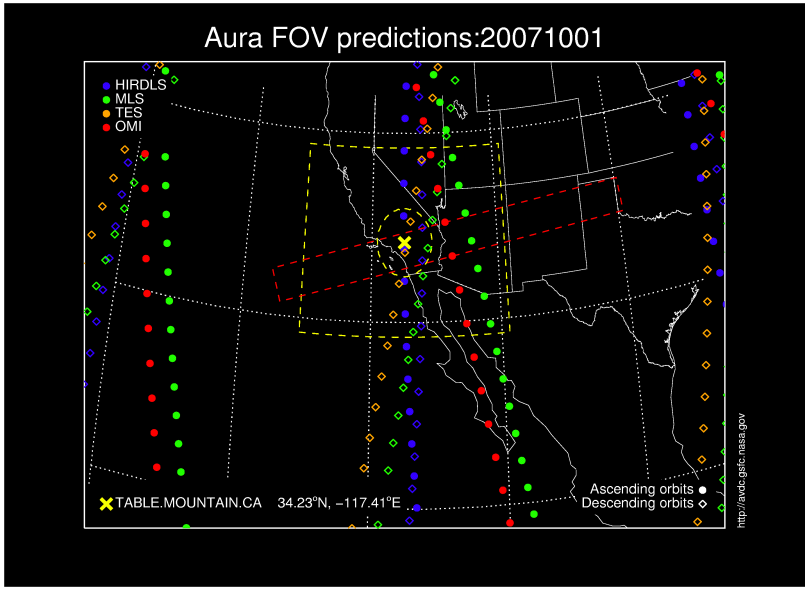
Cal/val support

L2/L3 subsets & colocation

- Sub-setting is updated as Aura L2 data becomes available (Sep 2010):
  - All OMI products (HDF5 and ASCII)
    - O3: 605 sites
    - Aerosol: 331 sites, including all current Aeronet sites
    - NO2: 620 sites
    - UV: 209 sites
    - SO2: 165 sites
  - MLS, HIRDLS and TES
    - O3, T, H2O at NDACC sites and other key profiling stations
- Subsetting of non-Aura data
  - MODIS, GOME-2, GOME, SCIAMACHY (online Oct 2010)
- Campaign and regional sub-setting on request
- Contact AVDC for information/additional requests

Satellite instrument field of views (FOV)

- Aura FOVs
  - Predictions in support of PIs and campaigns
  - 16-day Aura instrument FOV predictions for stations and campaigns (updated daily)
  - Actual FOVs
  - Actual coincidences and global collocations for temporal and geographic search



- Generation of FOV for other instruments
  - Aqua, Terra, CALIPSO, Cloudsat and Envisat for campaigns
  - others instruments are easily added

Cal/Val support tools

- Continue direct PI support
  - Mainly in sub-setting and data conversion

- Tools and documentation on-line
  - Generic Earth Observation Metadata Standard (GEOMS)
  - Creation of HDF datasets (idlcr8hdf + TAV)
  - Conversion Data Suite (CDS)
    - convert from NDACC Ames, WOUDC, ...
  - Download tools
  - Aura ST and WG documentation and presentations

- HDF5 read/write available for correlative data

Validation data centers

Data discovery and access

- Public data
  - Overpass, FOV, Aura L2, some campaign data
  - Since 2010/05 public http index directory (FTP-like):
    http://avdc.gsfc.nasa.gov/pub/

- Restricted and semi-restricted data
  - Correlative data
  - AVDC data exchange protocol
  - Since 2010/05 restricted http index directory (FTP-like):
    http://avdc.gsfc.nasa.gov/pub2/
    easier access to data with automated services
  - Data hosting on dedicated AVDC sub-sites
    e.g. preliminary, campaign data

GEOMS

- Generic Earth Observation Metadata Standard (GEOMS) facts:
  - http://avdc.gsfc.nasa.gov/GEOMS/
  - Shared standard of AVDC, EVDC, GECA, NDACC, ...
  - Final review Sep/Oct 2010
  - Implementation end Oct 2010
  - AVDC accepts data in old and new metadata format

- GEOMS applications:
  - Atmospheric datasets
  - New datasets from ocean and land observation, e.g. SST, SSP, LAI

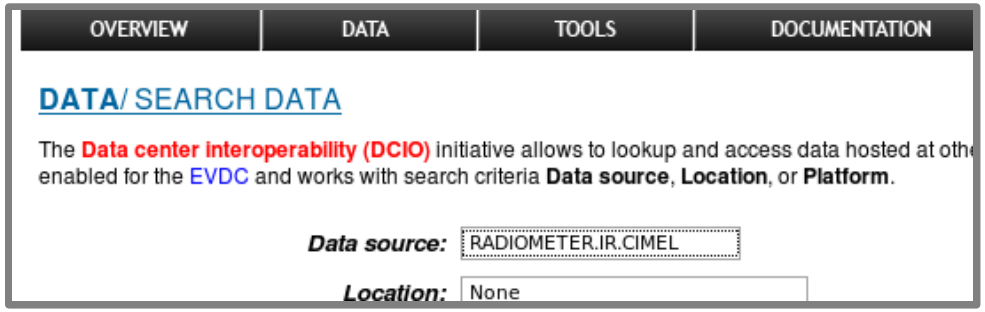
- Mapping of other metadata and data standards:
  - NetCDF
  - NASA Ames
  - WOUDC

Data center interoperability (DCIO)

- Effort led jointly by ESA (GECA interoperability project) and AVDC
  includes partners: NDACC, EARLINET, GEOMON, EARLINET

- Data centers with correlative observations share same catalog metadata
  - AVDC
  - EVDC (CALVAL, Envisat)
  - NDACC
  - several EC Campaigns

- File metadata preferably GEOMS



- Interoperable data centers through enabling remote query, catalog
  replication, data ordering and/or systematic mirroring

- Joint data exchange protocol in preparation (openID enabled)

DCIO datasets and tools

- Actual and potential datasets available to AVDC users through DCIO
  - NDACC
  - WOUDC, other WDCs?
  - Envisat validation
  - GECA future ESA EO satellite data
    includes atmosphere, ocean, land data
  - EARLINET
  - Radio Occultation

- Open-source data conversion tools

- GECA open-source building blocks (libraries) for collocation algorithms
  both for the users local use and for the data centers

Future plans

Up & Coming

- Focus on long-term validation
  - Collect, update, harmonize and convert ground datasets
  - Data completeness
- Continue ESA (GECA) and NDACC efforts
  - Share datasets and coordinate submissions
- Investigate support for Glory, NPP, JPSS
- Include new data centers and data sources
  - AERONET, MPLnet, EARLINET, WegenerCenter...
- Proactive on AVDC side but need support from cal/val and instrument teams

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